



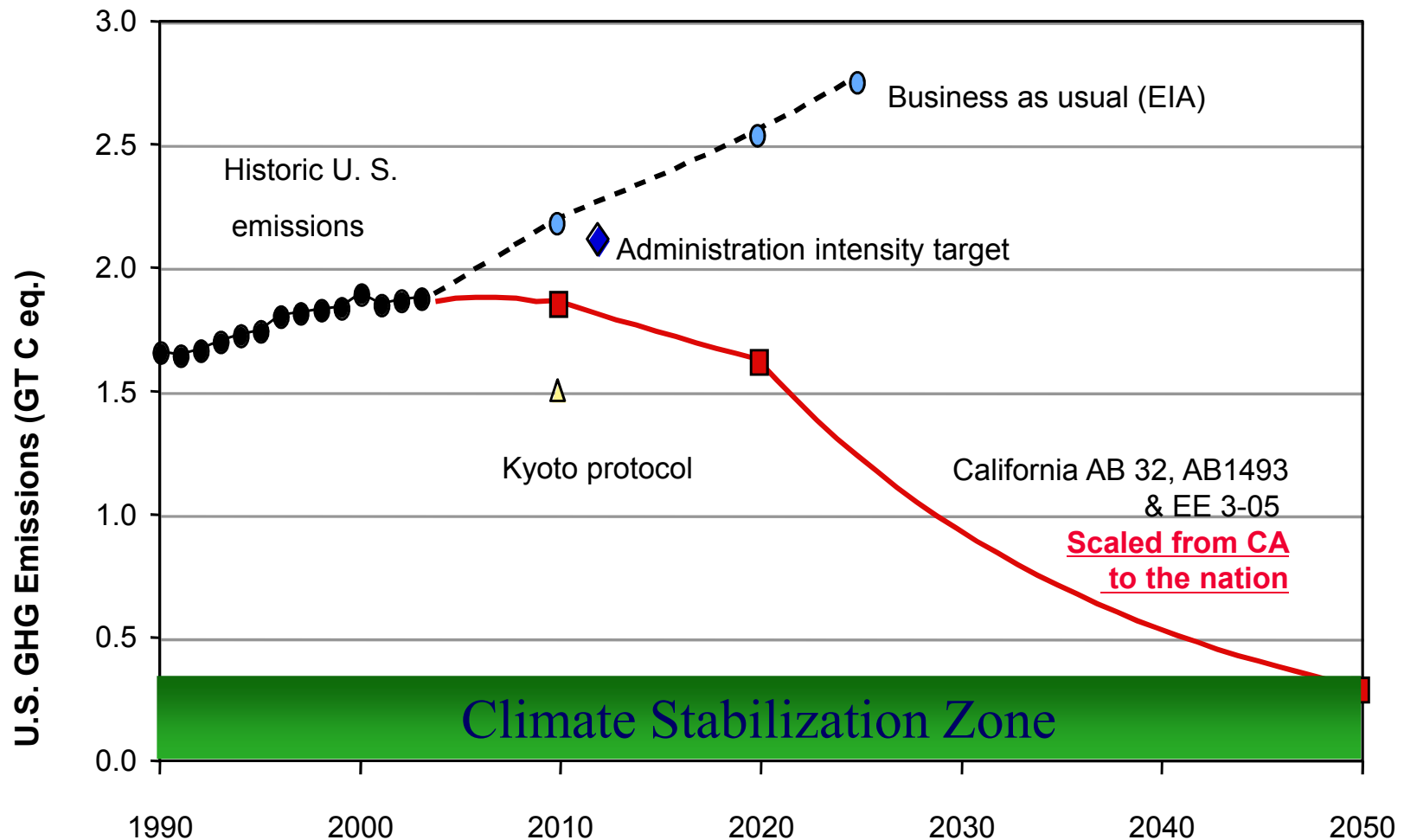
The Clean Energy Future

Daniel M. Kammen

Co-Director, Berkeley Institute of the Environment
Energy and Resources Group & Goldman School of Public Policy
Department of Nuclear Engineering
University of California, Berkeley

Materials online at: <http://rael.berkeley.edu>

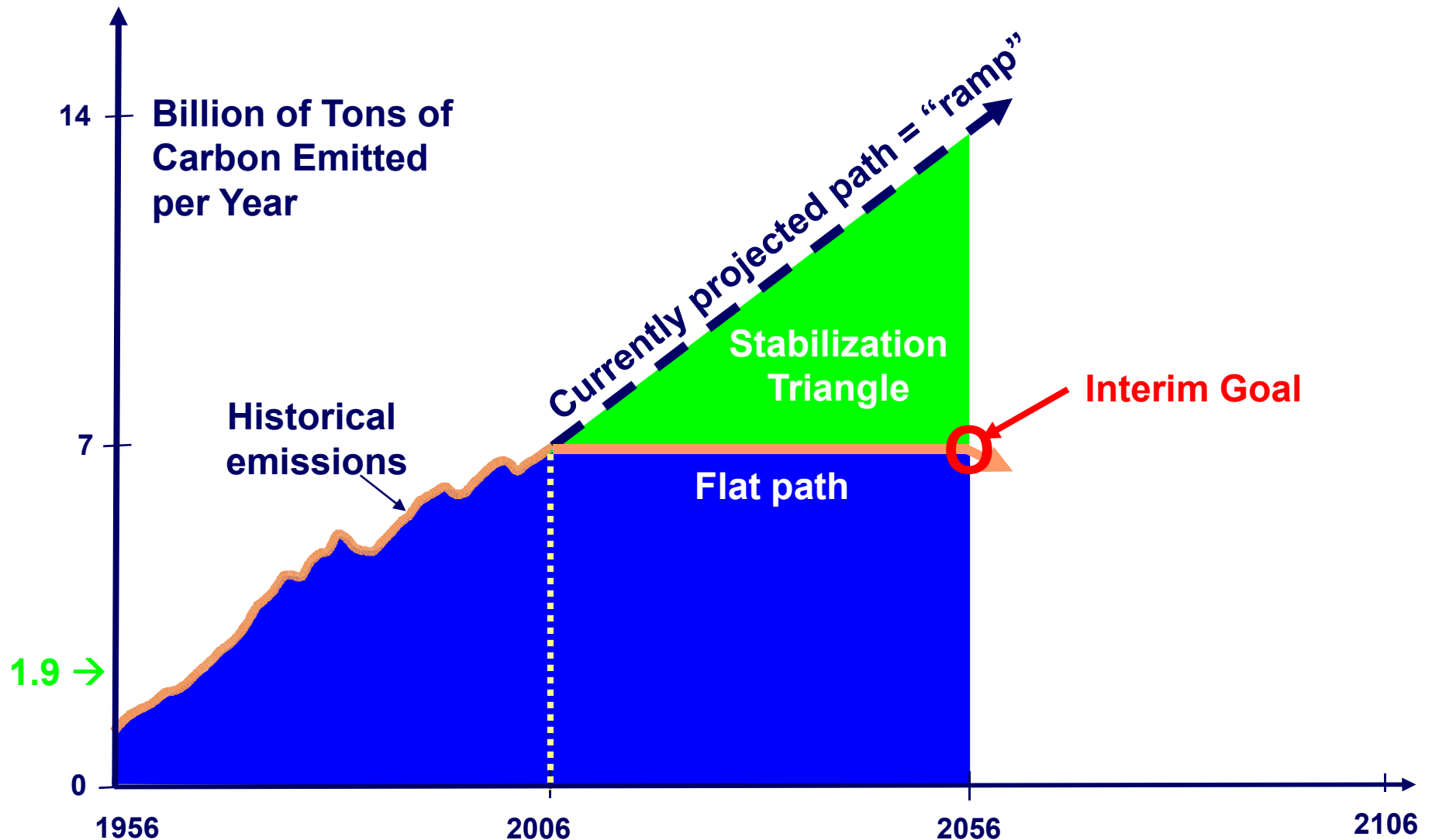
The California commitment - scaled to the nation



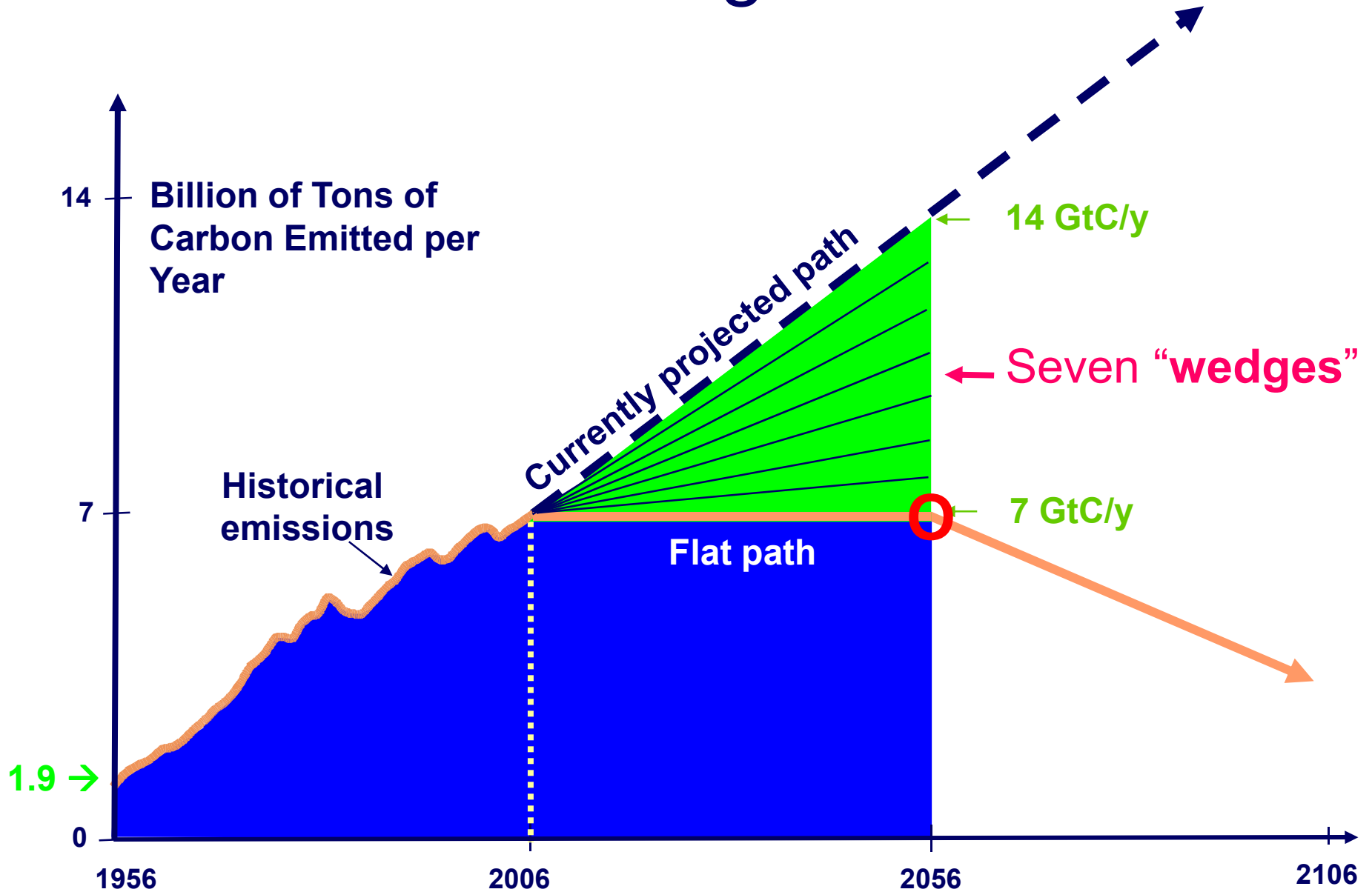
Kammen, "September 27, 2006 – A day to remember", *San Francisco Chronicle*, September 27,

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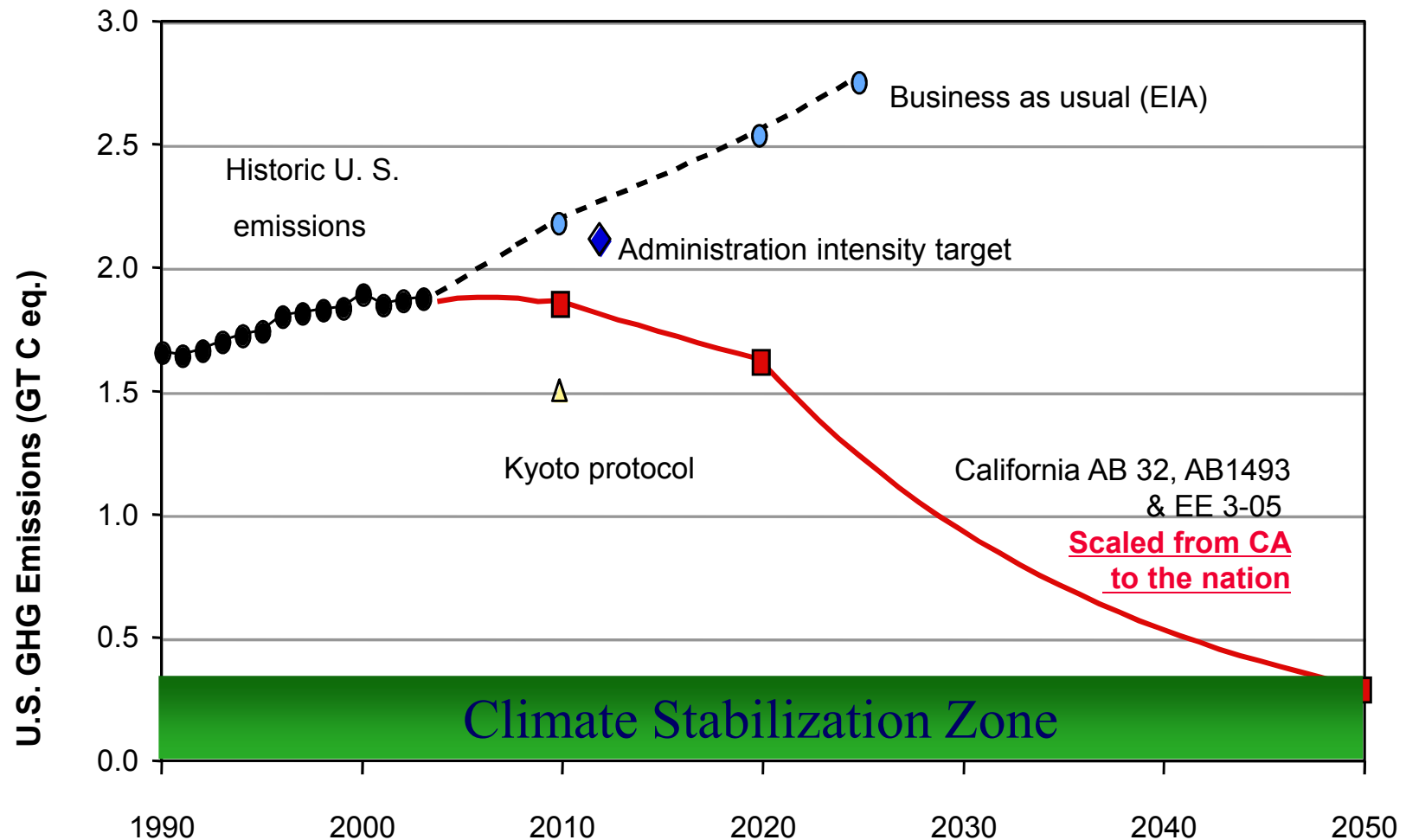
Carving up the Carbon Problem



Wedges



The California commitment - scaled to the nation

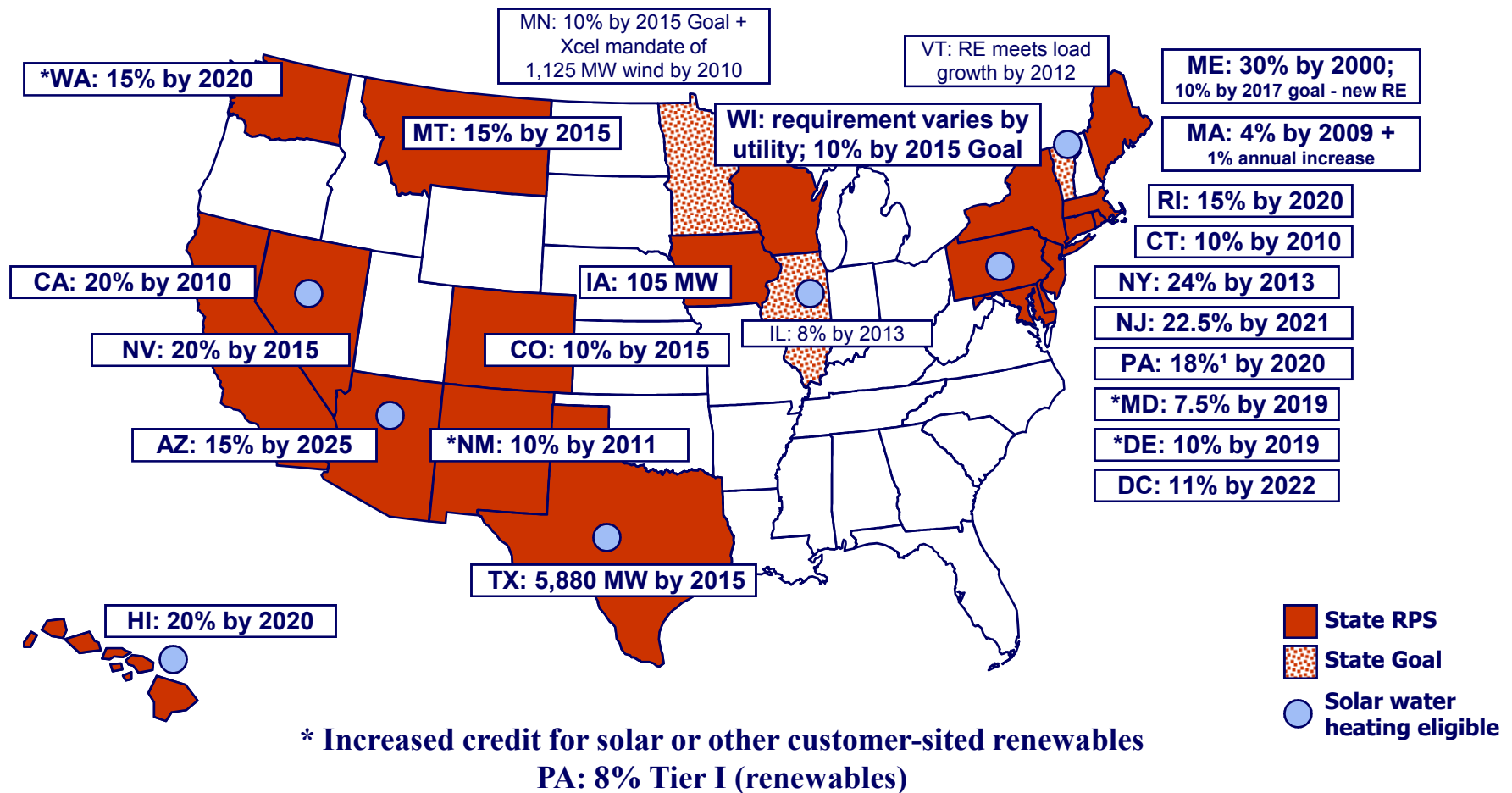


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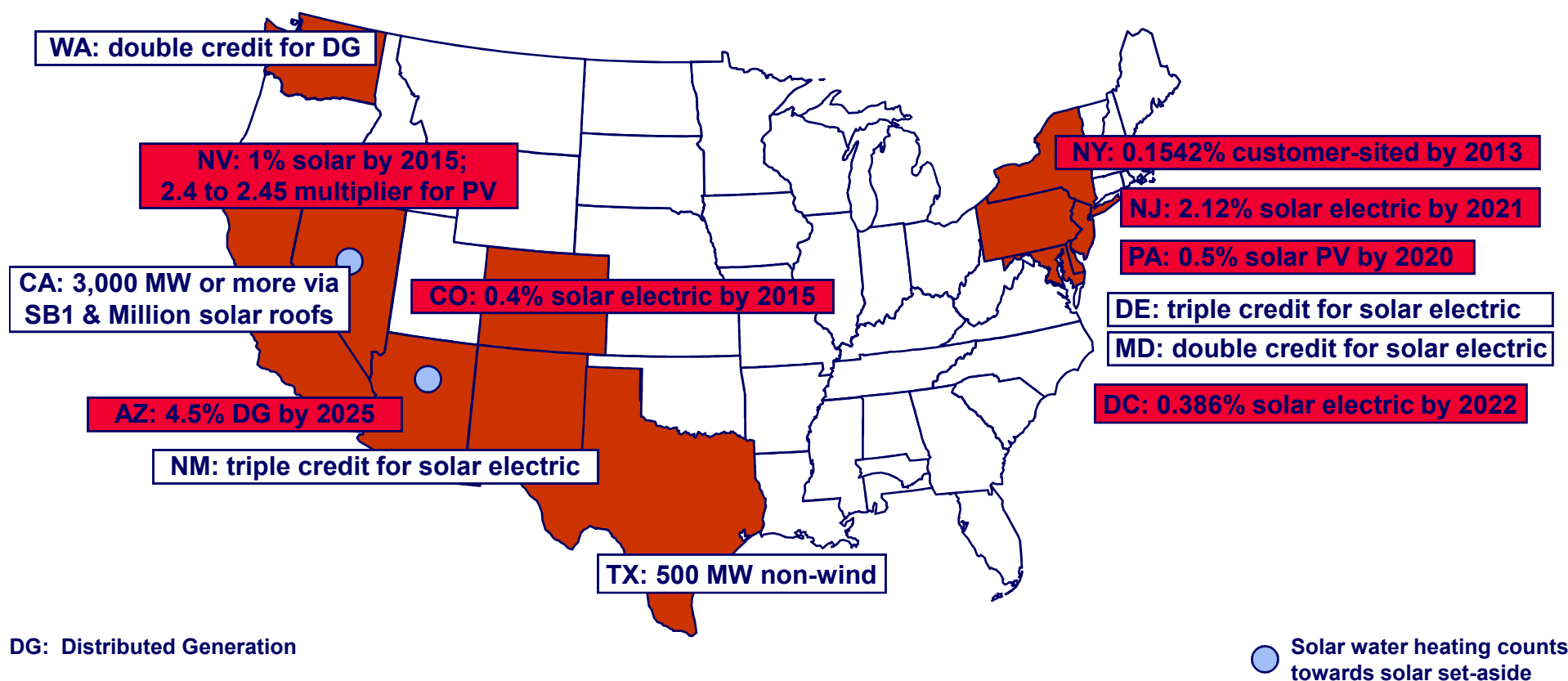
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Renewable Energy Portfolio Standards

23 states + DC, and counting



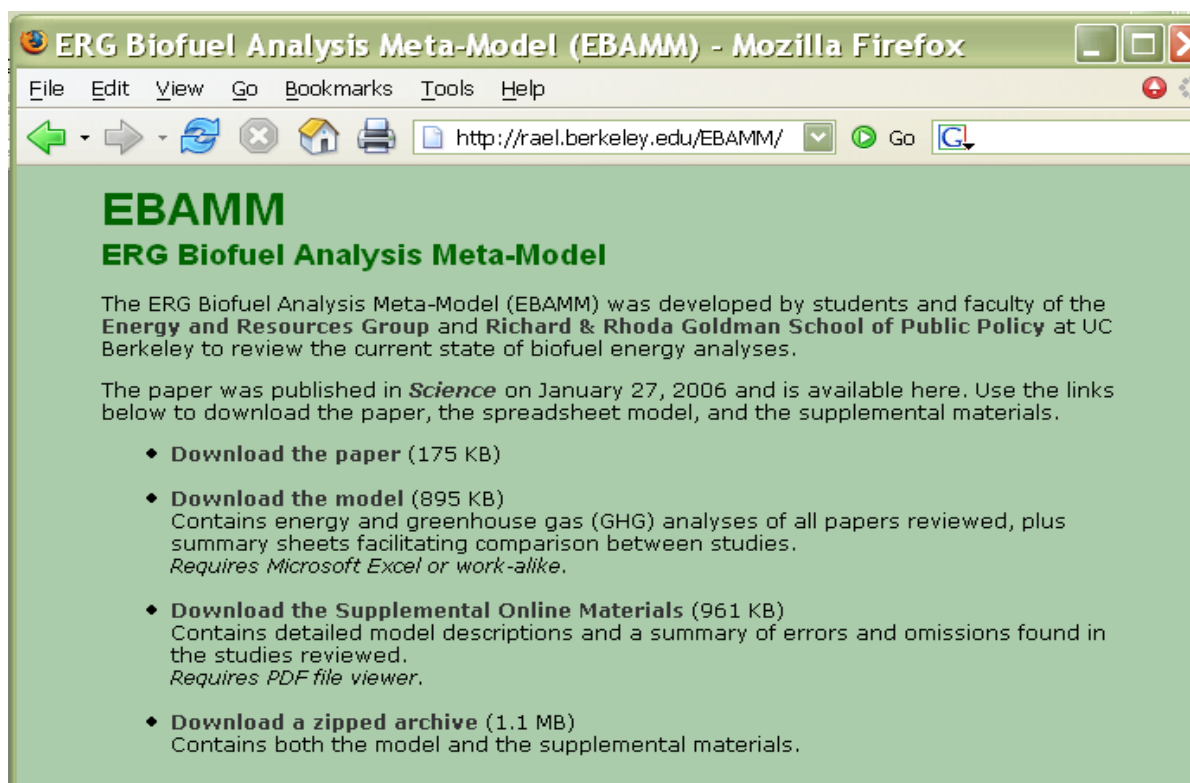
Solar & Distributed Generation Provisions in RPS Policies



Ethanol Can Contribute to Energy and Environmental Goals

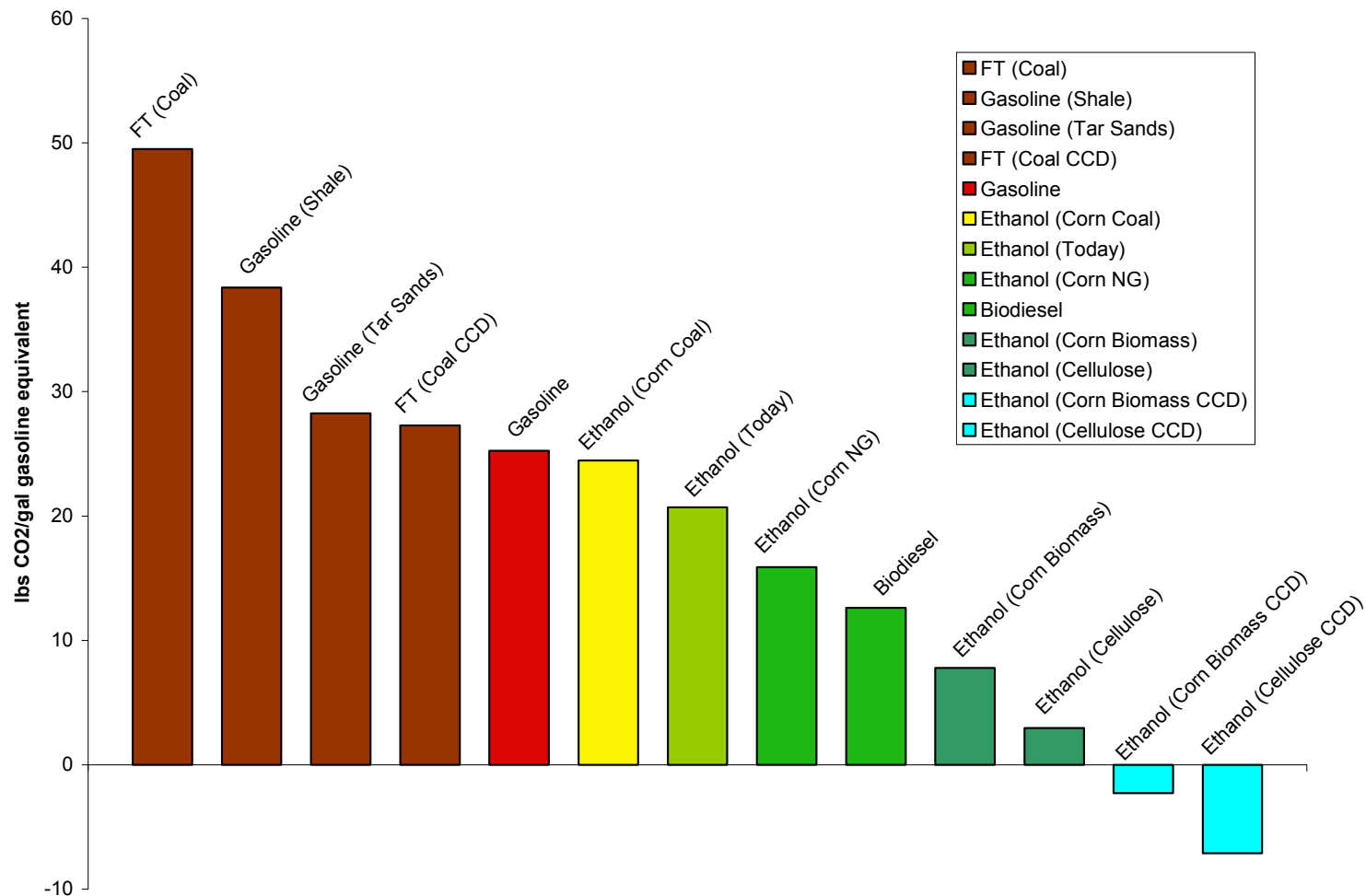
Alexander E. Farrell,^{1*} Richard J. Plevin,¹ Brian T. Turner,^{1,2} Andrew D. Jones,¹ Michael O'Hare,² Daniel M. Kammen^{1,2,3}

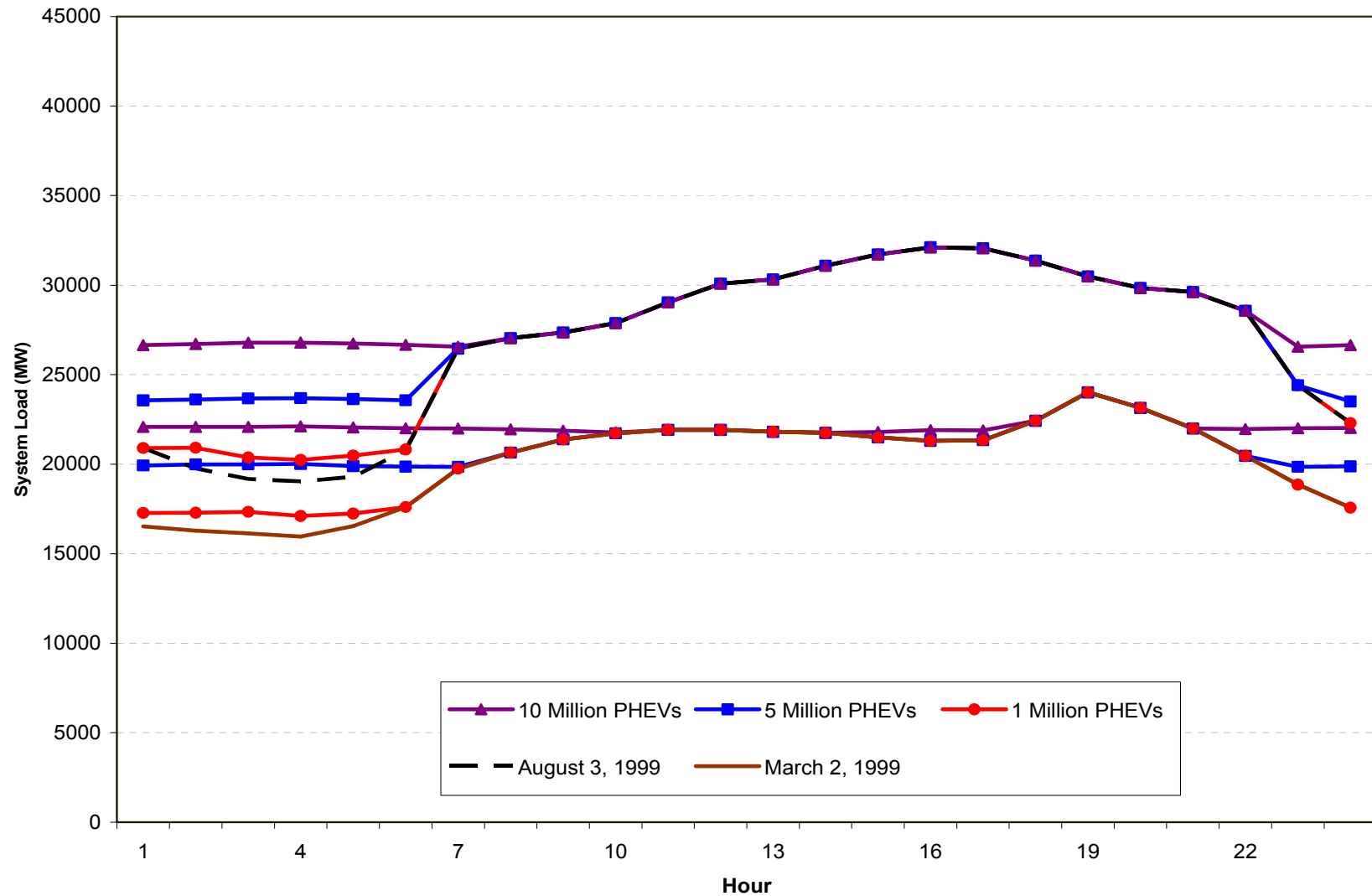
Open access, online, biofuel calculator tools: <http://rael.berkeley.edu/ebamm>



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An Alternative Fuel is Not Necessarily a Low-Carbon Fuel, but it can be





Daily load curves for optimal charging scenario with compact cars

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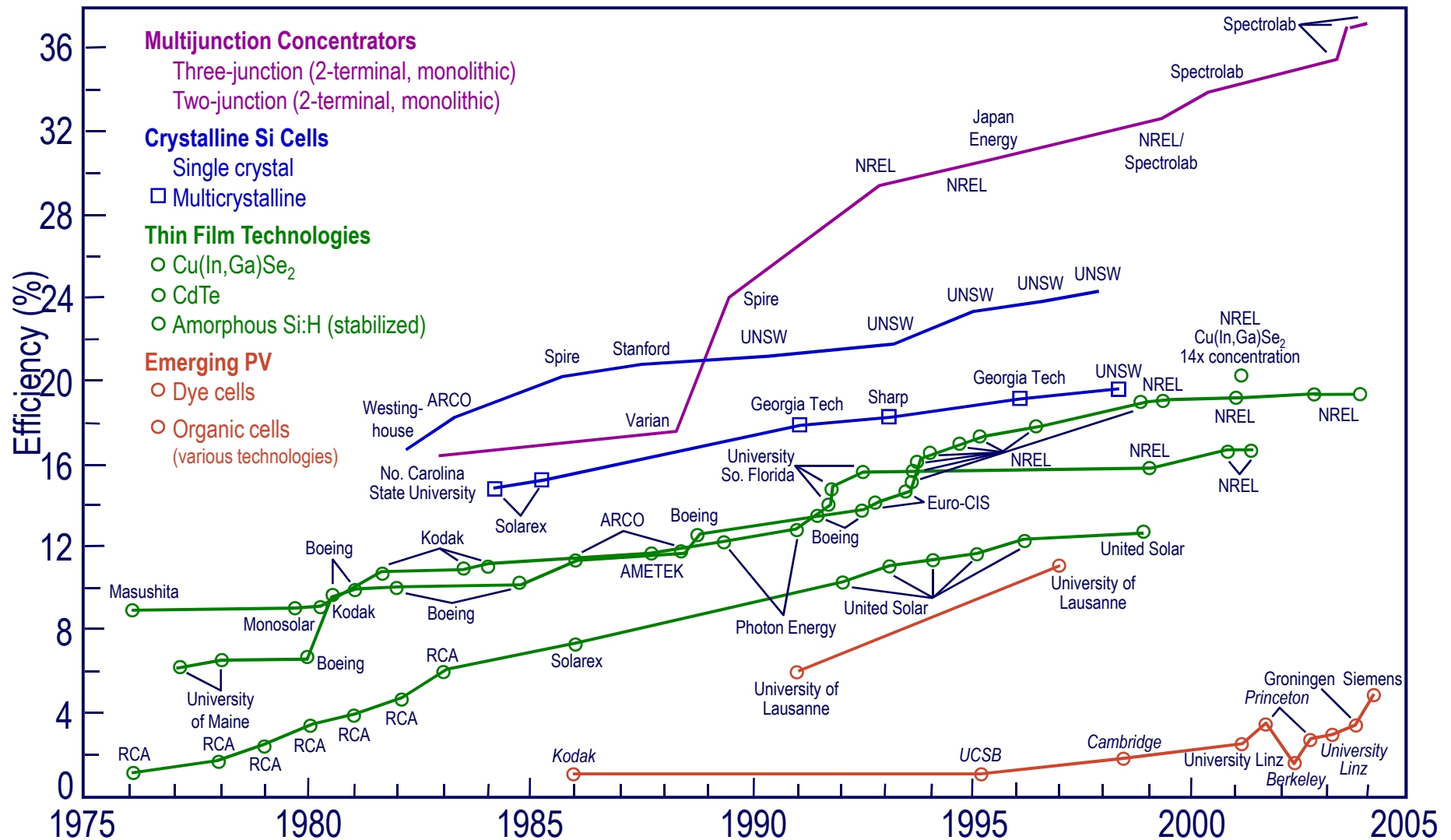


Energy Biosciences Institute

University of California, Berkeley
Lawrence Berkeley National Laboratory
University of Illinois at Urbana-Champaign

A \$500 million biofuel development grant from BP

Best Research-Cell Efficiencies



DOE/NREL Solar Energy Workshop, 2005

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Solar Energy for Many Applications

Moscone Center, SF: 675,000 W



Residential Solar: 1000 - 4000 Watts/home

CA Million Solar Roofs Program:
3,000 - 10,000 MW of solar to be built



Kenyan PV market: Average system: 18W

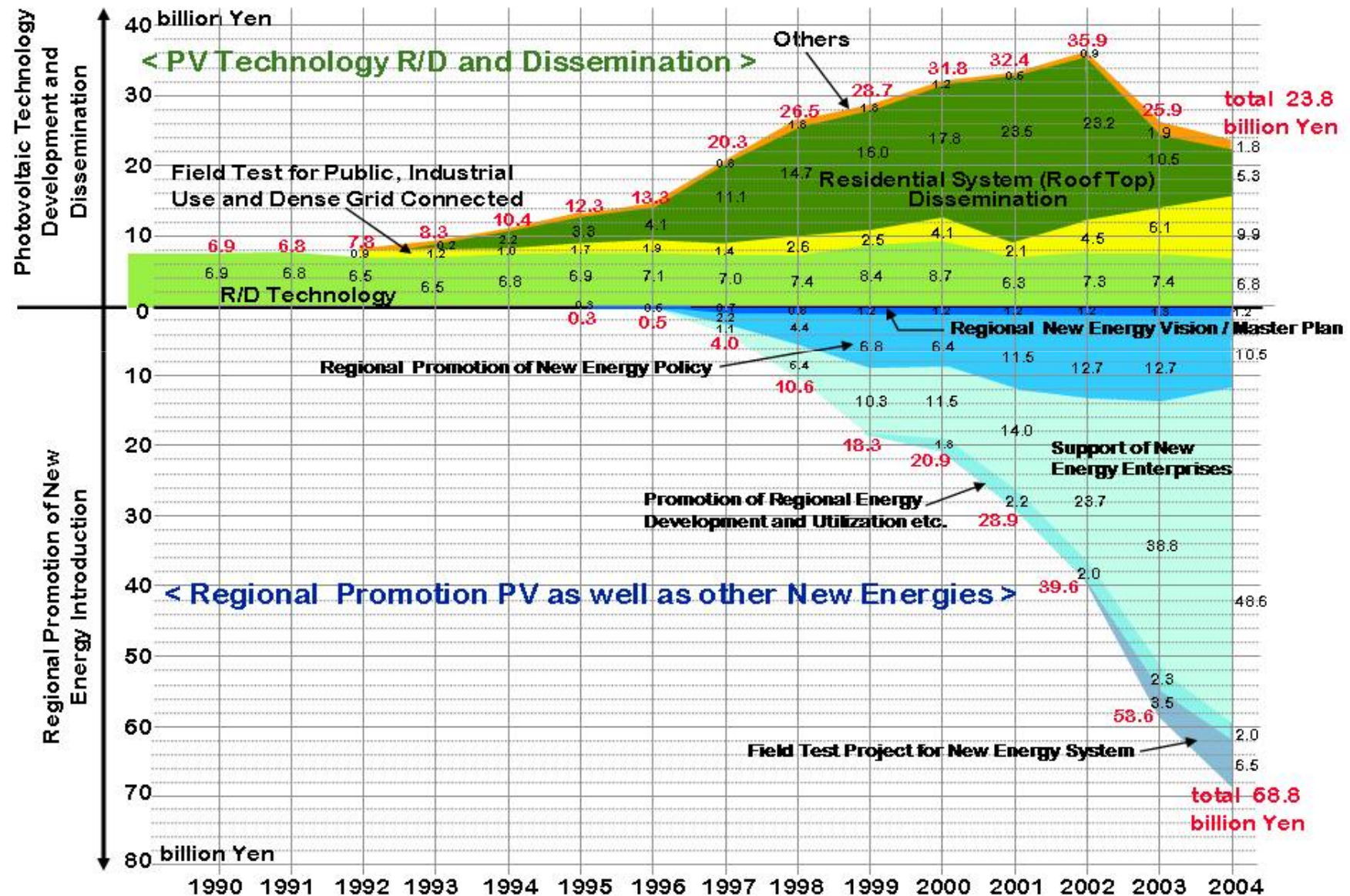
Largest penetration rate of any nation

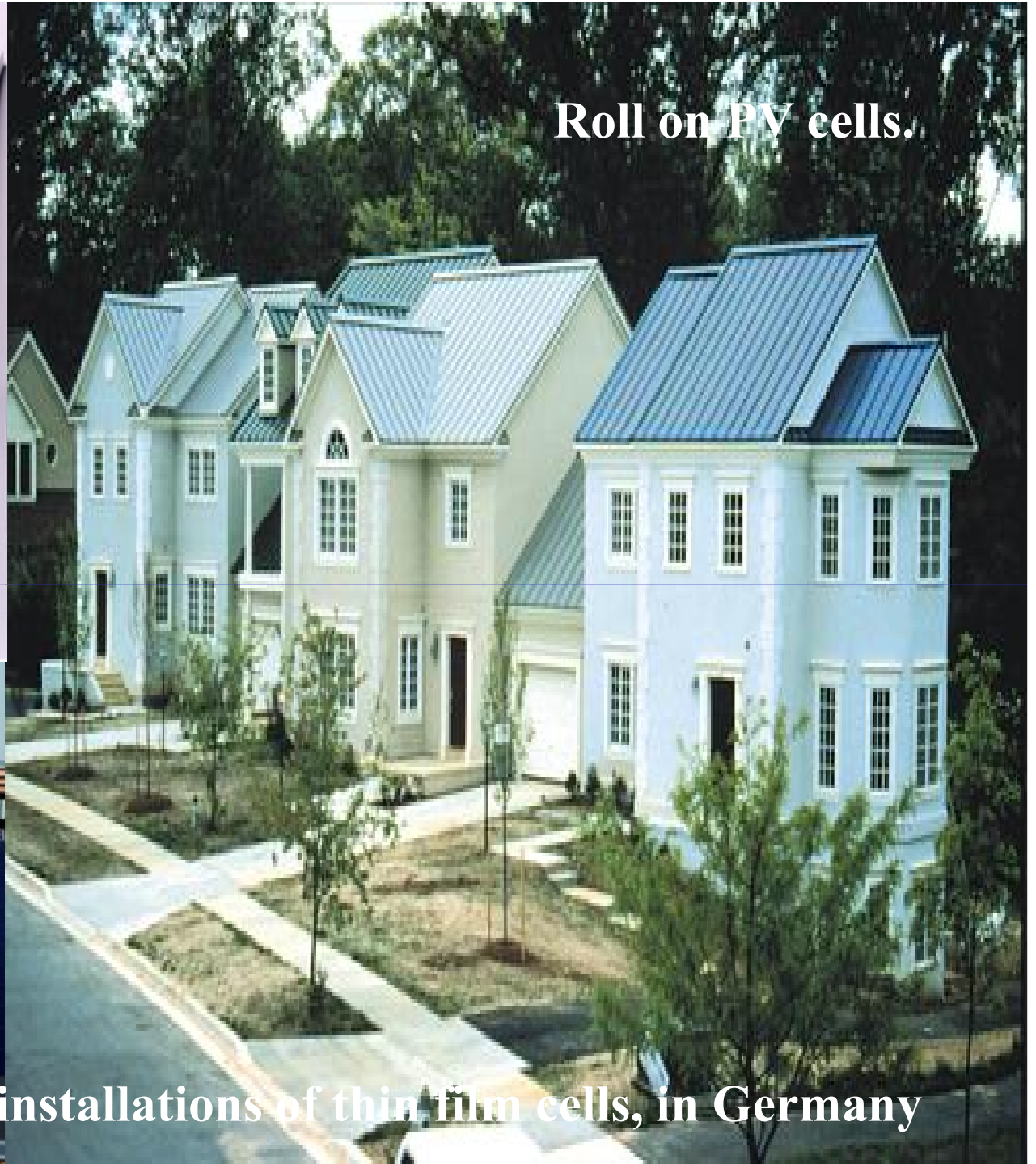
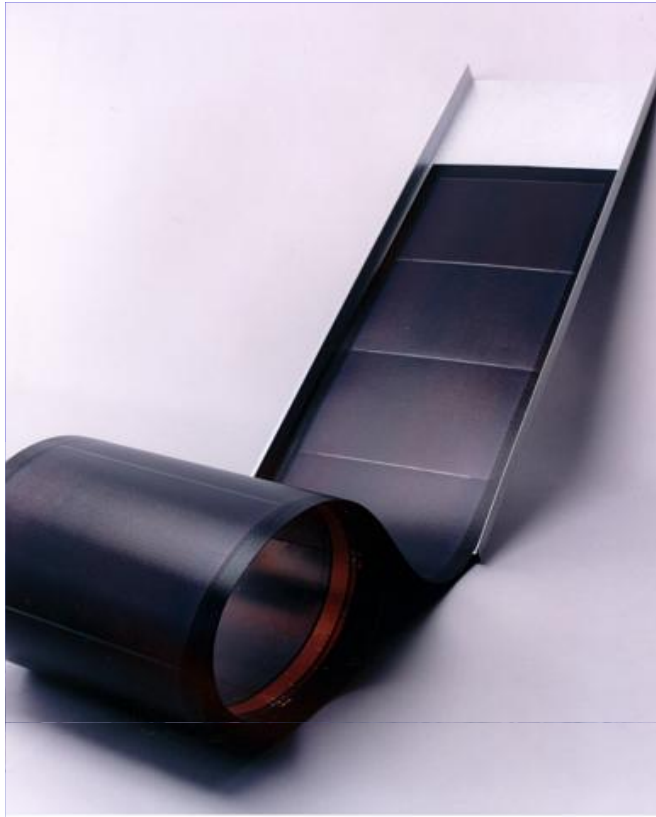
| | <u>California</u> | <u>Japan</u> |
|-------------------------------------|-------------------|--------------|
| 2005 Annual PV Installations | 50 MW | 290 MW |
| Average Cost for Residential System | \$8.8/Wac | \$7.4/Wac |
| Average Cost Reduction from 99-04 | 5.2%/year | 8.9%/year |



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Japanese “Sunshine” Program

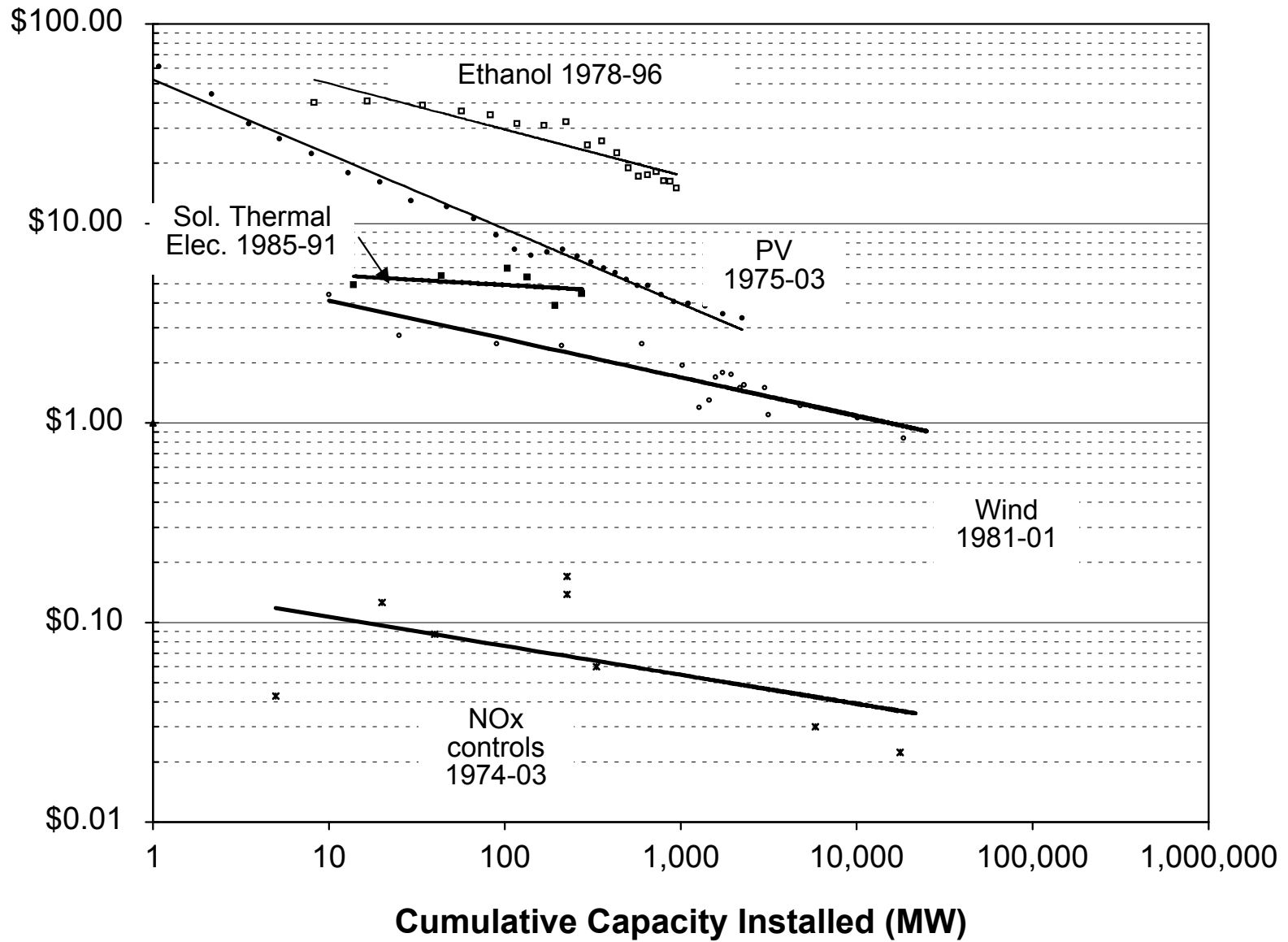




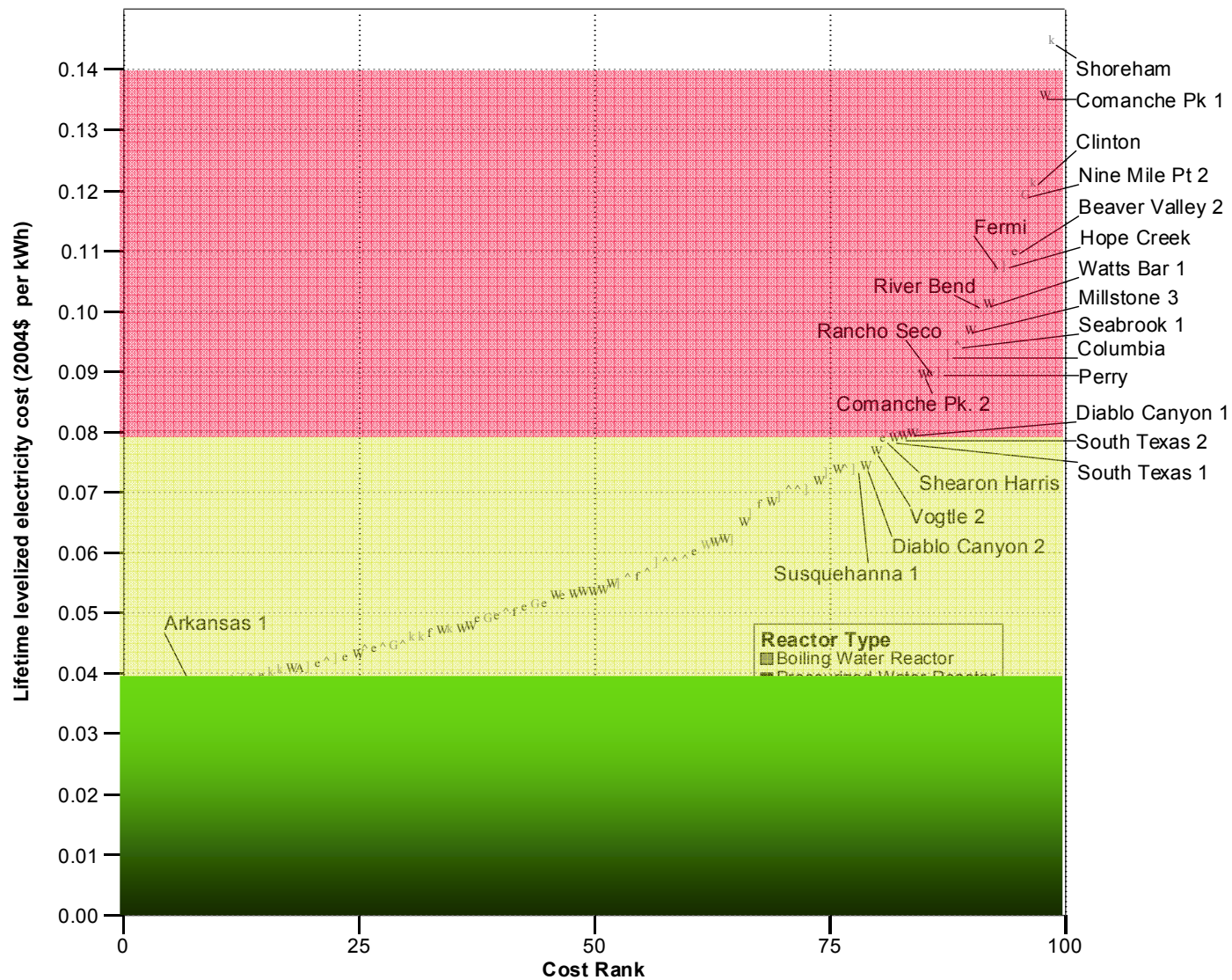
Roll on PV cells.



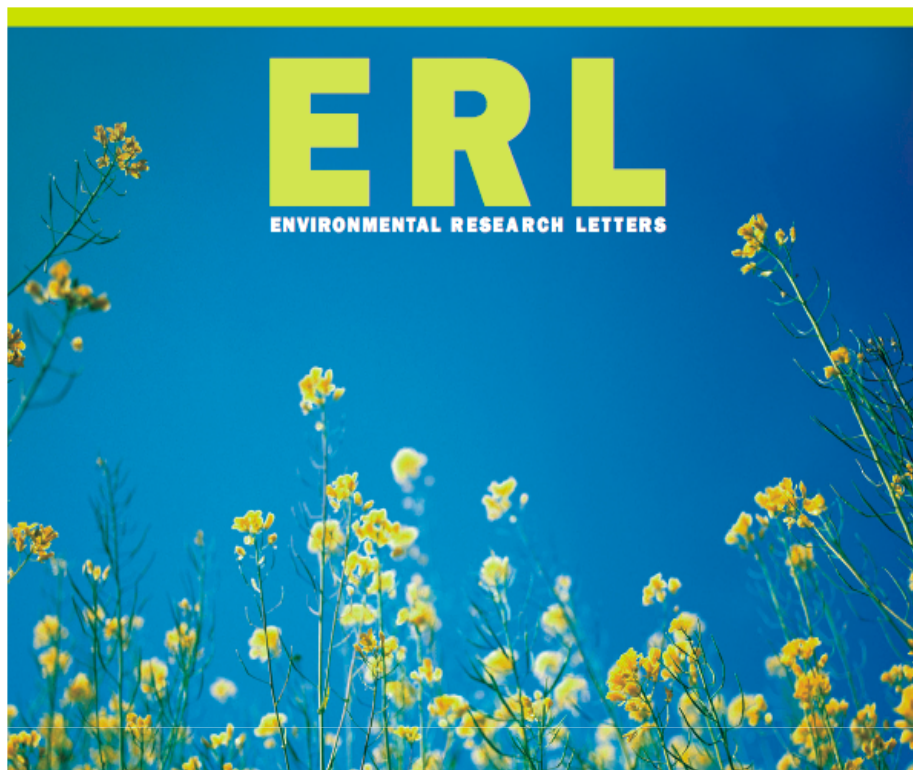
Solar photovoltaic installations of thin film cells, in Germany



The Cost of Nuclear Power from the U. S. Civilian Reactor Fleet



Hultman, Koomey & Kammen (2007) *ES&T*, in press



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DANIEL M KAMMEN,
EDITOR-IN-CHIEF

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